DANISH RESEARCH UNIT FOR INDUSTRIAL DYNAMICS

DRUID Working Paper No. 98-29

Strategy Research and the Market Process Perspective

by
Nicolai J Foss
&
Volker Mahnke

December 1998

Strategy Research and the Market Process Perspective

Nicolai J Foss
Volker Mahnke
RESPECT
Department of Industrial Economics and Strategy
Copenhagen Business School
Nansensgade 19,6
1366 Copenhagen K
Denmark

October 23, 1998

Abstract
We argue that strategizing fundamentally concerns disequilibrium phenomena, such as discovery, innovation, resource-combination, imagination – in short, entrepreneurship. Therefore, the understanding of strategizing is likely to be led astray by drawing too heavily on equilibrium theories. Arguably, the three dominant economic approaches to strategy – the Porter industry analysis approach, the new industrial organization, and the ressource-based approach – are characterized precisely by their strong reliance on equilibrium methodology. We argue that the market process approach in its Austrian version offers much inspiration for bringing process issues to bear on strategy issues.

JEL-classification
D21, L10, M13

Keywords
Strategy, organization, competitive advantage.

(ISBN87-7873-068-6)

Contents

I. Introduction[1]

As normally understood, strategy aims at the creation of sustained competitive advantage so that (hopefully, long-lived) rent-streams can be earned. Although this view is conventional, it is in no way uncontroversial or simple. What, for example, is meant by "sustained" or "long-lived" and how are these concepts dependent upon what we assume about the market process? Are (Ricardian, Paretian, or monopoly) rents really the only relevant category of return – or may it also make sense to think of strategizing as aiming at reaping pure profit through intertemporal and inter-spatial processes of entrepreneurial discovery (á la Kirzner, 1973)?

This also relates to how we conceive of the formulation and carrying out of strategies. A strategy is essentially a set of complex multivariate choices, including resources, activities and product market positioning. Thus, consider Rumelt, Schendel and Teece's (1994: 9) discussion of firm strategy:

> Because of competition, firms have choices to make if they are to survive. Those that are *strategic* include: the selection of goals; the choice of products and services to offer; the design and configuration of policies determining how the firm positions itself to compete in product markets (e.g., competitive strategy); the choice of an appropriate level of scope and diversity; and the design of organization structure, administrative systems, and policies used to define and coordinate work ... It is the integration (or reinforcing pattern) among these choices that makes a set a strategy.

A basic issue is how we conceive of those choices: Are they essentially *given*, in what Kirzner (1973) calls a "Robbinsian" manner, or are they best understood as being *constructed* through the entrepreneurial alertness of strategizers? This issue has been forcefully raised in the context of the theory of markets by Israel Kirzner in a string of publications (e.g., 1973, 1992) and we shall draw on his work, as well as the work of other Austrian economists, in the ensuing pages.

More specifically, we shall concentrate on the implications for strategy research of what we assume about the markets in which firms wish to position themselves. In this connection, we argue that a number of important contemporary theories of firm strategy are

[1] Forthcoming (in a French version) in Jackie Krafft, ed. *The Process of Competition*, Paris: Economia, 1999.

characterized by what we call a "*market theory problem*" (cf. Sautet, 1998). This is the problem of attempting to represent what are disequilibrium phenomena in terms of equilibrium. In our view, the phenomena that should be centerstage in a theory of firm strategy, such as change, entrepreneurship, knowledge accumulation, resource-combination, etc., are quintessentially disequilibrium phenomena. They are therefore likely to be seriously misrepresented by an equilibrium framework.

A theory of competition explains the nature and functioning of markets. If strategizing by firms influences market-processes and market processes influence firm strategy, any explanation of how strategizing leads to competitive advantage merits theoretical attention to the interrelation between both. Existing explanations of the firm's competitive advantage (resource-based, SCP or new industrial organization approaches) start from equilibrium assumptions of competition and portray the firm as a bundle of scarce resources (Barney, 1991; Peteraf, 1993) or, alternatively, as a unitary decision-making entity (Porter, 1980, 1985). Competitive advantage derives from market imperfection due to monopolistic restrictions on output (Porter, 1980), or from the distribution of ownership and access to valuable resources, that yield rents to the extent that ex post or ex ante limits to competitions prevail (Barney, 1991; Peteraf, 1993). In either case, sustained competitive advantage is thought of as a property of equilibrium: an equilibrium exists in which firms earn a sustainable rent-stream.

The literature on market processes, by contrast, describes competition as a process of continuous dis-equilibrium (Menger, 1871; Schumpeter, 1912; Mises, 1949; Hayek, 1948; Kirzner, 1973; 1992; Boettke and Prychitko, 1998), competition being driven by entrepreneurial discovery of given, but previously undiscovered profit-opportunities (Kirzner, 1973) and market-creation based on new entrepreneurial resource-combinations (Schumpeter, 1912). Markets and competition become a matter of learning and discovery in an essentially uncertain context (Kirzner, 1992). Competitive advantage fundamentally results from the subjective perception of profit opportunities, the exploitation of uncertainty, and the coordination of learning and knowledge. Put differently: competitive advantage is based on subjective, individual cognition and its coordination for collective competitive action that a given company is able to undertake undertake .

We are grateful to our colleagues in *RESPECT* for inspiration and discussion.

Like the market-process literature, the recent literature on strategy processes deals with subjective cognition (e.g. Hurst, Rush and White, 1989; Daft and Weick, 1984), the coordination of partly tacit knowledge (Hayek, 1945; Nonaka and Takeuchi, 1995), the discovery of profit opportunities (Kirzner, 1992; Ginsberg, 1994), and the entrepreneurial creation of profit opportunities through new resource combinations (Schumpeter, 1912) based on imagination (Schackle, 1958; Loasby, 1976; Hamel and Prahalad, 1994). These streams of literature, however, operate at different levels of analysis and have widely different disciplinary backgrounds. The market-process literature focuses on market-level processes from a heterodox economics perspective, while the strategizing literature focuses on processes leading to firm strategy from a plethora of perspectives and disciplines, including sociology and psychology. However, we shall argue that insights from these literatures can usefully be integrated to address the dynamics of competitive advantage.

The remainder of the paper is organized to address the following issues:

- What are the limitations of approaches to firm strategy that are rooted in equilibrium economics, where these approaches include the resource-based, the Porter industry analysis and the new industrial organization approaches?

- What may a market process perspective add to the analysis of strategy and competitive advantage?

While this paper is part of a more large-scale endeavor that aims at taking steps towards a more dynamic understanding of competitive advantage, the more limited ambition of the present paper is to present the ground-clearing arguments why there is a need for a shift from an equilibrium foundation to a process foundation in strategy research.

II. Equilibrium Explanations of Competitive Advantage: The Market Theory Problem

A. Three Equilibrium Approaches to Strategy

Three approaches are dominant among contemporary economic approaches to strategy (content) research.[2] These are 1) *the industry analysis approach* associated with Michael

[2] It is customary in the strategy litetature to make a rather sharp distinction between "strategy content research" (i.e., what is or should be the product of strategizing processes), and "strategy process research

Porter (1980), 2) approaches based on the *new industrial organization* and game-theoretic reasoning in general (Tirole, 1988; Shapiro, 1989;), and 3) *the resource-based view* (Demsetz, 1973; Wernerfelt, 1984; Barney, 1986, 1991).

All three approaches are characterized by substantially relying on economic theory in order to put forward new arguments, clarify terminology, interpret existing insights, criticize other approaches, etc. More specifically, the economics in question is largely mainstream, equilibrium economics, of either the basic UCLA-Chicago price-theory type (this is the case of the resource-based approach), old-fashioned industrial economics (the Porter industry analysis view) or the more fashionable new tools associated with game theory (new industrial organization).

In the following we briefly discuss these three approaches. Our purpose is to point out that they all suffer what we here call a "*market theory problem*": While the theories in question are formulated as equilibrium theories, the phenomena that they scrutinize, namely the emergence and sustainability of competitive advantage, can only be fully understood by a market process approach that highlights the disequilibrium market process, and the role of differential entrepreneurial cognition and insight in that process. The latter are highlighted in market-process theories, but neglected in mainstream economics. Thus, theories of strategy that rests solidly on the foundation provided by equilibrium economics are likely to neglect these issues. This neglect is what we call "the market theory problem".

B. The Industry Analysis Approach

In the mid nineteen-seventies, strategy scholars, such as Richard Caves and Michael Porter, realized that the Bain/Mason structuralist approach in industrial organization (IO) could be very usefully applied to the study of firm strategies and also for deriving practical recommandations. To Caves and Porter, basic IO concepts such as entry barriers and the collusion such barriers may foster offered an explanation of, for example, the observed persistence of above-normal profit. However, it was not entirely unproblematic to rely on IO in strategy research. For example, Bain (1959) explicitly excluded from the focus of IO any "... internal approach, more appropriate to the field of management science, such as could

---

(i.e., the process through which a strategy is actually arrived at). We shall later argue that this separation is less watertight than it may look.

inquire how enterprises do and should behave in ordering their internal operations and would attempt to instruct them accordingly" (p.VII-VIII). As this indicates, the would-be importer of IO to the strategy field confronted a basic translation problem, deriving from the explicit dissociation from any "internal approach, more appropriate to the field of management science".

Furthermore, IO was fundamentally static, did not seriously consider the diversified firm, saw the firm as a unitary decision-maker, had an industry – rather than a firm – focus, operated with perfect competition as the ultimate yardstick for purposes of welfare comparisons, etc. (Scherer 1980; Porter 1981). This was much in contrast to the mainstream of the strategy literature that from its emergence in the beginning of the 1960s saw strategy as involving entrepreneurial action in an uncertain and hard-to-predict environment (Ansoff 1965), did not neglect the large, diversified corporation (Chandler 1962), was very much concerned with the internal workings of the firm (Bower, 1970), etc.

Although Porter was well aware of the problems this raised for an application of IO to the strategy discipline (Porter, 1981), many of the unfortunate characteristics of IO did in fact carry over to his industry analysis approach (Porter, 1980). An example is the black-box conceptualization of the firm that is characteristic of older IO and which is clearly present in his best known book, *Competitive Strategy* (1980). Another one is the implicit equilibrium orientation: the focus is implicitly on non-cooperative equilibria where firms earn rents from their market-power because of their ability to engage in tactics designed to build and maintain mobility and entry barriers.

With respect to the first problem, proponents of the resource-based perspective (such as Barney, 1991) have seen the neglect of the resource and capability side of firms as a major weakness of the Porter (1980) industry analysis approach. In contrast, they haven't criticized the second problem, namely the underlying equilibrium orientation of the industry framework, because the resource-based approach is itself based on equilibrium economics, as we shall see later. For the moment, let us concentrate on the first problem.

Admittedly, it may be analytically permissible to "black box" the firm for some purposes, such as, perhaps, understanding short-run business strategy in well-defined business environments. This may be so, because such issues do not necessarily involve significant changes in the firm's stock of resources. But this procedure may block understanding in other respects, such as explaining the direction of the firm's diversification activities (Montgomery and Wernerfelt,

1988), the inter-firm (imitation) barriers that block the equalization of rents among firms (Rumelt, 1984; Wernerfelt, 1984), and the growth strategies of firms (Penrose, 1959). Understanding such issues makes it necessary to treat the resource side of firms in some detail. However, this is arguably not fully recognized either in the next approach we consider, namely the new industrial organization.

C. The New Industrial Organization

The upsurge in work within the new IO took place in the beginning of the 1980s. Most research has been concerned with game-theoretic studies of behavior and performance in imperfectly competitive markets (Tirole, 1988; Shapiro, 1989; Schmalensee and Willig, 1989; Saloner, 1994). More specifically, scholars specify a game among competing firms and solve that game using the concept of Nash equilibrium or one of its refinements (such as "sub-game perfection"). According to prominent new IO scholar, Carl Shapiro (1989), recent work in new IO can virtually be identified with "the theory of business strategy". Indeed, he goes as far as asserting that "[a]t this time, game theory provides the only coherent way of logically analyzing strategic behavior" (1989: 125). "Strategic behavior", in this approach, means engaging in behavior that by influencing rivals' expectations of one's future behavior is able to significantly influence the behavior of those rivals to the benefit of the strategizing firm.

Although the Porter industry analysis framework is not identical to the new IO, they have a common ancestor in older IO, and share many of the same assumptions and concerns. In some ways, however, the new IO represents a distinct advance relative to the Porter framework. For example, firms in the new IO are not homogenous. Thus, they may differ not only in terms of their cost structures but also in terms of, for example, their reputations (Tirole, 1988: 256). Moreover, the notions of factor/resource indivisibility and immobility become central, primarily because these notions play a key role in understanding entry-deterrence and, more generally, the notions of credible threats and commitments.

In spite of these advances relative to the industry analysis approach, the New IO still suffers from weaknesses when perceived through the lens of market-process theories. Most notably, there is no notion of an entrepreneurial discovery procedure (Kirzner 1973), in the sense that firm managers are not supposed to discover and act on new opportunities in the market. Everything is essentially given from the beginning and specified by the analyst. Although the

decision problem that strategizers confront in such models may be a good deal more complicated (because they have to consider extremely complicated game trees) than standard maximizing problems, everything is still presumed to be given to the decision maker/strategizer.

We can see this more specifically, if we ask, for example, why firms differ in the new IO. In general, the most important reasons why firms differ are because they 1) are placed in different environments, 2) come equipped with different initial endowments, 3) learn differently, and 4) are subject to different discretionary actions from management. Point 3) and 4) are the ones highlighted in market process theories, while point 1) is explanation of firm heterogeneity in the industry analysis approach[3], and point 2) represents the new IO approach to accounting for variety. Thus, in new IO models of technological competition, firms make different *initial* R&D draws, face different constraints and incentives, and accordingly make different strategies (Tirole, 1988: chapter 10). In contrast, points 3) and 4) are not featured in new IO as explanations of firm heterogeneity. Rather, the differences are already there, as it were, and do not change.

In this view, strategy becomes primarily a matter of deploying given resources to a product-market, and utilizing them in sophisticated plays and counter-plays. Strategy becomes a matter of extracting maximum monopoly rents out of "fixed factors over the planning horizon" (Caves, 1984: 128). Thus, firms in the new IO are clearly different, but the sources of heterogeneity are given and fixed; firms do not themselves create their own opportunity set. To some extent, this is because the agents that populate the new IO models are incredibly smart. Here, a strategy involves anticipating any and all actions that other players might take in all future stages of the game, and calculating the optimal response. Since all players are able to do this, the equilibrium position is essentially given from the beginning. Players cannot be surprised by unexpected events, there is never any difference between the competence of players and the difficulty of decision problems, and although agents may formally learn in Bayesian games, their learning *functions* never change. This means that there cannot be any failed strategies and wrong conjectures, no need for restructuring organizations in the face of, for example, new competition from innovative entrants, no "emergent" (unintended) strategies (Mintzberg, 1994), and no accumulation of resources (except as represented in a trivial way by learning by doing). But it also means that we cannot address endogenous firm heterogeneity in

[3] And, we may add, in conventional economics as well.

the context of the new IO. The problem fundamentally is that there is no notion of an entrepreneurial market process in the new IO; it too suffers from a market theory problem.

D. The Resource-Based Perspective

In little more than a decade, the resource-based perspective (the RBP) has emerged as arguably the dominant contemporary approach to strategy (content) research – as perhaps the new orthodoxy in strategy research inspired by economics. The resource-based analysis of (sustained) competitive advantages may be seen as starting out from two basic empirical generalizations, namely that 1) there are systematic differences across firms in the extent to which they control resources that are necessary for implementing strategies, and 2) that these differences are relatively stable. The basic structure of the RBP emerges when these two generalizations are combined with fundamental assumptions that are to a large extent derived from economics. Among these assumptions are that 3) differences in firms' resource endowments cause performance differences, and 4) that firms seek to increase their economic performance.

The overall managerial implication is that firms may secure a strong performance by building or otherwise acquiring certain endowments of resources. More generally, the overall objective that informs the RBP is *to account for the creation, maintenance and renewal of competitive advantage in terms of the resource side of firms*. The fundamentals of the resource-based analysis of the conditions for sustained competitive advantage are basically simple (Peteraf, 1993): in order that resources yield a sustained competitive advantage, they should meet four basic criteria:

• *Heterogeneity* – i.e. in lieu of efficiency differences across resources, there cannot be any differences in the rents which firms earn (in fact, there cannot be any rents at all). This indicates that resource heterogeneity, leading to efficiency differences and therefore rents, is a basic necessary condition for competitive advantage.[4]

[4] An alternative formulation – put forward by Barney (1991) – is that with homogeneous resources, all firms can implement the same strategies; hence, no firm can differentiate itself from other firms, and nobody will have a competitive advantage.

• *Ex ante limits to competition* – i.e. resources have to be acquired at a price below their discounted net present value in order to yield rents. Otherwise future rents will be fully absorbed in the price paid for the resource (Demsetz, 1973; Barney, 1986; Rumelt, 1987).

• *Ex post limits to competition* – i.e. it should be difficult or impossible for competitors to imitate or substitute rent-yielding resources. As Dierickx and Cool (1989) clarify, there are a number of mechanisms at work that often make it hard for competitors to copy the sources of competitive advantage of a successful firm. For example, there may be "causal ambiguity", which means that competitors confront difficulties ascertaining precisely how a bundle of resource contributes to success.

• *Imperfect mobility* – i.e. the resource should be relatively specific to the firm. Otherwise, the superior bargaining position that is obtained from not being tied to a firm can be utilized by the resource (or the resource's owner) to appropriate the rent (or, at least a large portion of the rent) that the resource helps create. In other words, the key question to ask here is: Who captures value from the resource, and how may the firm capture more value from this resource?

Several things are noteworthy about this basic analysis. First, it explicitly draws on economics, more precisely on basic, economic equilibrium price theory as set out in any standard text-book on the subject. Second, it actually tells us very little of direct value for understanding the more dynamic and managerial aspects of competitive advantage. For example, the analysis is painted with too broad a brush to be directly helpful in connection with issues relating to the renewal of competitive advantage. As this indicates, the RBP, too, suffers from a market theory problem, and again the reason has to do with the role of equilibrium assumptions.

It is easy to discern the role of equilibrium assumptions in the RBP. For example, Peteraf (1993) develops the concept of Ricardian rent is developed using efficiency differences across firms under competitive equilibrium as a benchmark. And Barney (1986) utilizes the finance concepts of strong and weak efficiency to elucidate the reasoning behind the concepts of perfect factor markets and factor market imperfections. Indeed, the very concept of sustained competitive advantage is often defined in equilibrium terms: it is that advantage which lasts after all attempts at imitation have ceased. So, (zero imitation) equilibrium is utilized as a yardstick to define and understand (sustained) competitive advantage.

But there is an apparent problem here. For using an equilibrium notion to define the concept of sustained competitive advantage implies that the concept loses direct contact with reality. For example, sustainability is not a matter of calendar time. It is a matter of the "logical time" of equilibrium models, and cannot be directly translated into real time[5]. Furthermore, sustained competitive advantage exists only in (zero imitation) equilibrium (cf. Lippman and Rumelt, 1982); it simply makes no sense to speak of sustained competitive advantage outside of equilibrium, because equilibrium is *defined* as the absence of imitation. Given that one of the central aims of the resource-based perspective is to uncover the sources of sustained competitive advantage (Barney, 1991; Peteraf, 1993) in terms of concepts such as rareness, non-imitability, non-substitutability, etc. of resources and capabilities, it appears that much of the important structure of the resource-based perspective is solidly founded on equilibrium methodology. This has the implication, unfortunately, that sustained competitive advantage has no meaning outside equilibrium, and that the concept is hard to operationalize. Thus, the market theory problem again raises its ugly head – this time in the RBP.[6]

E. The Role of Equilibrium: Useful Benchmark or Hindrance for Theorizing?

It is necessary to understand that equilibrium theories may take different forms. It is one thing to say that all phenomena should be represented as if always in equilibrium – what we may call "the equilibrium always world". And it is quite another thing to admit equilibrium as a legitimate tool of analysis, for example, as a state that real-world markets are constantly tending toward (but perhaps not reaching) – a much softer notion of equilibrium, and one that many market-process economists (including the present authors) would have no difficulties accepting.

---

[5] Barney (1991: 102) explicitly makes this point. For discussions of the complex issue of time in economic models, see Shackle (1972) and O'Driscoll and Rizzo (1985).

[6] In fairness, it should be noted that many researchers have seen it as a distinct advantage of the RBP that it helped aligning strategy and economic equilibrium. As Spender (1993: 42) noted in a related context, "The notion of rents is simply a way of bringing the homogeneity of economic thought together with the heterogeneity of the real world". For example, if information costs are positive, we can have an equilibrium with firms of different efficiencies and rents (and therefore different competitive advantages), and we can perform the usual comparative static exercises in this setting (Demsetz, 1973, 1989b; Lippman and Rumelt, 1982). Moreover, equilibrium, in the eyes of writers such as Barney, is a useful benchmark, one that can be used for analyzing factor market imperfections and sustained competitive advantage.

Most strategy content research inspired by economics tends to adopt the hard version of equilibrium. Most notably, this is the case of both strategy research inspired by the new IO (e.g., Ghemawat, 1997) and the RBP. Admittedly, both streams of literature suggest a starting point for the strategy process, namely with the analysis of the industry or the company's resource endowment respectively. However, none of them provide any insight into the strategy process *per se*. More critically, perhaps, they implicitly suggest that the strategy process can somehow be separated from the content of a strategy, and that implementing strategy is trivial.

In contrast, we shall later argue that if we begin from the market process premise that in *any* social system, knowledge is subjective, partly tacit and dispersed, it 1) does not make sense to suppress process issues and concentrate on equilibrium only, 2) is not legitimate to separate the strategy process from strategy content, and 3) is not legitimate to neglect implementation issues. Even strategy content research is likely to be biased in a too narrow direction by the equilibrium always assumption. This is because there are determinants of competitive advantage that only become visible in a process perspective, such as the ability in a big firm to make extensive use of dispersed, subjectively held and tacit knowledge in that firm.

The suppression of process is but one shortcoming in equilibrium-based strategy research. Another one is the tendency to see firms as unitary actors. If indeed the world is always in equilibrium, not only markets are in equilibrium, but also the internal (principal-agent) relations between the agents who supply inputs (notably, work inputs to the firm). "Equilibrium" in the latter sense means that incentives have been aligned through compensation schemes, etc. Given this, it makes sense to treat the firm as a unitary actor. However, the whole process of internal jockeying, aligning incentives, etc., which is a crucial aspect of strategy formation and implementation, is suppressed. Thus, strategy can be portrayed, as in Porter's (1980, 1985) industry-analysis approach, to big decisions of firms-understood-as-unitary-actors, whether they concern product differentiation, cost leadership, or focus (cf. Barney, 1994).

Although resource-based analysis explicitly starts from the assumption of firm heterogeneity, it assumed in this approach that "... firms within an industry may possess different strategically relevant skills and capabilities … Skills and capabilities that enable the organization to conceive of, choose and implement strategies that exploit environmental opportunities" (Barney, 1994: 67). Again, we have the implicit view of the firm as a unitary actor, which is

also characteristic of other equilibrium approaches to strategy. And again we have the implicit supposition that all intra-firm agency-type problems, knowledge gaps, etc. have been eliminated and all interests have been aligned.

By contrast, once we recognize that firms are multi-person coalitions populated by asymmetrically informed individuals who perceive the world subjectively, and that subjective knowledge and learning processes need to be somehow coordinated for successful strategy formation (Minzberg, 1994), these separations begin to blur. For then the very activity of carrying through a strategic planning exercise may yield competitive advantage through the added knowledge it may bring top-management of dispersed knowledge and learning processes in the firm.

Given the shortcomings of equilibrium oriented strategy content research – that is, what we have called "the market theory problem" – we seriously question the soundness of this research strategy. There are, in our view, no compelling logical or ontological reasons for such a commitment. In fact, we argue that the "equilibrium always" strategy may be a serious hindrance to theorizing, precisely because of the market theory problem. For example, as already suggested, a tight connection between the understanding of competitive advantage and the "equilibrium always" assumption surely hinders understanding a number of real world phenomena. As a general matter, we are cut off from approaching the disequilibrium aspect of competitive advantage; for example, maintaining competitive advantage through engaging in learning and innovation activities. These activities involve per definition novelties in the sense of the acquisition or creation of novel knowledge - and such novelties are hard to force into an equilibrium straitjacket.

Equilibrium models may undeniably be useful in connection with tracing the effects of the creation of new knowledge – for example, the effects on factor prices of the creation and diffusion of new technical knowledge – but they tell us next to nothing about the process of creation and coordination of knowledge. Thus, equilibrium concepts may also introduce a static bias and they may, if used in a too heavy-handed way, hinder understanding of process (disequilibrium) phenomena within the firm and within the market. Strategy is very much about exploiting and perhaps initiating periods of disequilibrium, and we wish to theorize this aspect of strategy, too. In our view, this necessitates that we turn to non-mainstream economics, more precisely what we here call "market process economics".

III. An Alternative View: Market Process Economics

A. What is Market Process Economics?

Although Williamson (1988: 94) observed that "[t]he proposition that process matters is widely resisted and has attracted little concerted research attention from economists", not everybody has resisted this "proposition" and there has been some "concerted" research effort[7], taking place under the banner of "market process economics" (Boettke and Prychitko, 1998). This line of thought includes the Austrian school of economics (e.g., Mises, 1949; Hayek, 1948; Kirzner, 1973; Lachmann, 1986), and evolutionary (Nelson and Winter, 1982), Schumpeterian (Schumpeter, 1934), and post-Marshallian economics (Loasby, 1991), as well as some contributions with a more formal, neoclassical character (e.g., Fisher, 1983). Fundamentally, these streams attempt to conceptualize and understand the mechanisms that drive disequilibrium processes of change, although these mechanisms are conceptualized somewhat differently among the streams.[8] In the following, we provide a *signallement* of market process economics.

B. The Market Process

Our core concept is that of "market process" understood in the sense of active rivalry (Kirzner 1997). In contrast, there is a tendency in mainstream economics to conceptualize competition in terms of consistency of maximizing decisions taken by consumers and producers. Thus, competition is understood in terms of equilibrium (competitive equilibrium). Moreover, since equilibrium basically means a state of rest (at least in older conceptualizations), this conceptualization gives a distinctly *static* character to the concept of competition (but see Vickers, 1995). However, as Friedrich Hayek noted more than fifty years ago, the economist's equilibrium understanding of competition differs significantly from lay understanding:

> The peculiar nature of the assumptions from which the theory of competitive equilibrium starts stands out very clearly if we ask which of the activities that are commonly designated by the verb "to compete" would still be possible if those conditions were all satisfied ... I believe that the answer is exactly none.

[7] Historically, the suppression of process in economics is largely a post Second World War phenomenon (Foss, 1994; Machovec, 1995).

[8] For example, evolutionary economics give more attention to forces of inertia than Austrian economics does.

> Advertising, undercutting, and improving ("differentiating") the goods and services are all excluded by definition – "perfect" competition means indeed the absence of all competitive activities (Hayek, 1948: 96).

Furthermore, Hayek argued that by portraying competition as a tranquil state rather than as a rivalrous process, what we want from competition, and how we get it, becomes basically obscured. If competition is indeed best understood in static terms – as a state characterized by large number of sellers and buyers, perfect information, consistency between the maximizing decisions of consumers and producers, with the implied welfare properties – then it is not necessarily unreasonable to think that this situation can best be achieved by public intervention (e.g., market socialism), or at least, that public policies can help society approximate the competitive equilibrium. But this basically misconstrues the nature of competition, what we can expect to get out of competition, and how competition is best promoted. Briefly, competition should not be understood as a static state of affairs, but as a rivalrous process. More specifically, competition is fundamentally a procedure for discovering

> ... *who* will serve us well: which grocer or travel agency, which department store or hotel, which doctor or solicitor, we can expect to provide the most satisfactory solution for whatever personal problem we may have to face (Hayek 1948: 97).

Knowledge and Entrepreneurship. Such knowledge is not in any meaningful sense *given* to a single mind who can somehow disseminate it across the economy and make sure that it is efficiently utilized; we rely on competition as the mechanism for mobilizing and disseminating such dispersed knowledge. It is important to appreciate that when Austrians and other market-process theorists talk about dispersed knowledge, what they have in mind is not "imperfect" or "asymmetric information" as these are understood in mainstream economics (e.g. Nalebuff and Stiglitz 1983). Although these are important analytical categories, there is a further category that is not treated in mainstream economics, namely sheer (or unknown) ignorance. Becoming aware of something (e.g., a profit opportunity) that one had previously overlooked (and not *searched* for) is what is meant by discovery. Kirzner's argument (which is discussed more fully below) is then that the competitive market is a superior setting for generating entrepreneurial discoveries through the exercise of alertness. For although the entrepreneur may not search for any profit opportunity in particular, the lure of pure profit may nevertheless lead him to continually scan the horizon, as it were (Kirzner, 1997: 72).

We rely, in short, on competition because it is an *effective procedure for discovering knowledge that we do not yet know is available or indeed needed at al* (Hayek, 1968). To the extent that this is the social function of competition, it is to misconstrue competition to portray it as a state in which each market participant has either deterministically perfect or stochastically perfect knowledge. More broadly, it is to misunderstand the character of the economic problem facing society:

> The peculiar character of the problem of a rational economic order is determined precisely by the fact that the knowledge of the circumstances of which we must make use never exists in concentrated or integrated form but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess. The economic problem of society is thus not merely a problem of how to allocate "given" resources – if "given" is taken to mean given to a single mind which deliberately solves the problem set by these "data". It is rather a problem of how to secure the best use of resources known to any of the members of society, for ends whose relative importance only these individuals know. Or, to put it briefly, it is a problem of the utilization of knowledge which is not given to anyone in its totality (Hayek, 1945: 78).

What seems to have prompted the emergence of these insights is Hayek's involvement during the nineteen-thirties in a debate on the economic feasibility of socialism, now called "the socialist calculation debate" (Lavoie, 1985). Hayek's socialist opponents here either maintained that all relevant knowledge could in fact be centralized, or, if it could not, the problem could be solved by telling socialist managers to obey simple price-setting rules that would lead to an optimal allocation of resources.

Against this, Hayek argued that the market socialists basically overlooked 1) problems of incentive compatibility, 2) tacit local knowledge (which couldn't be centralized) and 3) the need for rapid adaptation to unexpected contingencies/novelties (which made centralization inefficient). With respect to the last point, Hayek observed that

> [i]f we can agree that the economic problem of society is mainly one of rapid adaptation to changes in the particular circumstances of time and place, it would seem to follow that the ultimate decisions must be left to the people who are familiar with these circumstances, who know directly of the relevant changes and of the resources immediately available to meet them. We cannot expect that this

> problem will be solved by first communicating all this knowledge to a central board which, after integrating all knowledge, issues its orders (Hayek, 1945: 83-84).

Hayek's point, of course, is that a "central board" is not at all necessary: a market system, meaning a system with alienable property rights, promotes a tendency towards allocating property rights to those who can make best use of them and competition ensures that best use is indeed made of these rights.

Action and Entrepreneurship. However, it has been left to Israel Kirzner (1973, 1992) in particular to elaborate the details of the Austrian view of the market process. In doing this, he has put primary emphasis on the entrepreneur. As Kirzner (1973: 14) argues, "... our confidence in the market's ability to learn and to harness the continuous flow of information to generate the market process depends crucially on our belief in the benign presence of the entrepreneurial element". The foundation of this claim lies in Kirzner's distinction between "*Robbinsian maximizing*" and "*entrepreneurial alertness*". The first behavioral category conforms to the standard picture of economic man as basically applying *given* means to best satisfy *given* but conflicting ends in a fundamentally mechanical way (Robbins, 1934). Since everything is given, action becomes purely a matter of calculation. Kirzner points out that within this conceptualization of behavior, the discovery of new means, of new ends, and the setting up of new means-ends structures simply cannot be rationalized.

As a result, the dynamic market process cannot be understood in terms of the passive mode of behavior of Robbinsian maximizing; we need another behavioral quality, the quality of entrepreneurial alertness to hitherto unexploited profit opportunities. This alertness factor ranges from the discovery of a ten dollar bill on the street to the discovery of a need for a new potentially extremely profitable drug. Thus, entrepreneurs are discoverers; they discover new resource-uses, new products, new markets, new possibilities for arbitrage, in short, new possibilities for profitable trade.

Combining his notion of entrepreneurial behavior with Hayek's notion of the market as a dynamic process, Kirzner paints a broad picture of the market process as a continual process of entrepreneurial discovery of hitherto unnoticed opportunities for pure profit. The profits earned in this process are discovered profits – profits that are earned because of the discovery, creation and exploitation of profit opportunities *that would not be grasped in the absence of entrepreneurial activity*. Thus, the entrepreneurial function is beneficial because it alleviates

the problem introduced by the division of knowledge. It is not only that entrepreneurial activity reduces our lack of knowledge about which products, processes, new organizational forms, etc. are needed; it is more fundamentally that entrepreneurial activity alleviates our ignorance about what we don't know.

C. Summing Up

So far we have argued that the dominant approaches to firm strategy build on equilibrium economics and an understanding of competition that is derived from it. We have suggested that this perspective on firm strategy has several shortcomings when it comes to conceptualizing what strategy is about and how successful strategies emerge. Thus, an "equilibrium always" perspective runs into what we have called "the market theory problem", which in the present context refers to the inability to make sense out of the dis-equilibrium aspects of competitive advantage, and also, we wish to add, the inability to conceptualize the strategy process.

The purpose of the present section has been to present an alternative view of competition – that contained in market-process economics. In this view competition is driven by the combined forces of 1) entrepreneurial discovery of given, but previously undiscovered profit-opportunities (Kirzner, 1973), 2) market-creation based on new entrepreneurial resource-combinations (Schumpeter, 1934) and 3) market-making (Casson, 1982). Markets and competition become a matter of learning and discovery in an essentially uncertain context (Kirzner, 1992). This view suggests a different understanding of competitive advantage. Competitive advantage fundamentally results from the subjective perception of profit opportunities, the creation and exploitation of uncertainty, and the coordination of learning and knowledge. Below we summarize a number of the crucial differences between a market process view and an equilibrium view.

Table 1

Differences between a market process view and an equilibrium view

	Equilibrium economics	**Market process economics**
Role of equilibrium	All economic phenomena must be portrayed as if in equilibria. "Equilibrium always".	At most a state towards which some tendencies in the market reach
The entrepreneur	Not considered	Crucial; the driving force of the market process
Knowledge	Information. Asymmetric and imperfect, but at least stochastically given. Given learning functions.	Subjective, dispersed and tacit. Surprises take place. Genuine uncertainty.
Cognition	Uniform	Differential (subjectivism)
Innovation	Excluded, or exogeneous; not of substantial importance.	Included, endogenous; of crucial importance, new resource combination
Institutions	Embody incentives	Embody incentives *and* reduce uncertainty
The market	A costless price-mechanism working through auctioneer, common knowledge, etc.	A costly discovery, coordination and learning process
Adaptation	Simultaneous	Sequential
Competition	Action within known contexts, such as price-taking	Creation of new markets, innovation, discovery
Competitive advantage	Based on equilibrium	Based on mobilization of locally dispersed intelligence, creation and utilization of disequilibrium

In the following section, we argue that it makes a difference to how we conceive of the task of building theories in strategic management whether we take our starting point in equilibrium economics or in market process theories. In particular, we discuss (a) the affinity between cognitive theories of strategizing and market process theory, (b) the implications for linking strategy content to process, (c) illustrate some implications for advances in strategy research, to finally (d) advocate a new understanding of competitive advantage based on a market process perspective.

IV. Strategizing, the Market Process, and Competitive Advantage

The key issue to be addressed here is: How does it make a difference that we rely on market process economics rather than on equilibrium economics when theorizing about strategy? Our argument proceeds along the following lines. First, although several authors have called for a theory of strategy that integrates strategy content (to which end should strategy - processes work?) and process research (how does the strategy process proceeds?), this integration is still missing to large extent (section A). Secondly, we argue that an integration between strategy content and process research may best proceed on a set of shared assumptions. Building on market process assumptions regarding individual cognition, the dispersion of knowledge, and entrepreneurial imagination and discovery is crucial for a dynamic theory of competitive advantage and a coherent theory of strategy. This view is supported by a number of management scholars who have called for a more process-oriented and more cognitive orientation in strategic management research (Section B). Thirdly, joining the insights of market process economics and cognitive strategy process research we can envision a coherent theory of strategy to advance. To this end we tentatively suggest that strategy content consists of (1) the utilization of opportunities for spatial and inter-temporal arbitrage, (2) the discovery and imagination of new resource-combinations, based on which (3) new markets are created. We furthermore discuss intra-firm processes that may support such outcomes (Section C).

A. Linking Strategy Process to Strategy Content Research

Recently, a number of influential management scholars (e.g. Pettigrew, 1992) have forcefully argued that strategy research should treat the two dimensions of strategy – content and process

– in a more integrated manner. For example, with Dan Schendel (1992: 2) we may ask whether, when the

> challenge is to use administrative process to shape or develop good strategy, and then go on to develop those processes necessary to use the strategy to operate the firm … does it make sense to construct dichotomies of content and process?

Using stronger words, Andrew Pettigrew (1992: 6) urges us to "... to abandon the intellectual trap … in classifying strategy research into content and process domains", and argues that this is necessary for the strategy field to proceed. Moreover, when content research is increasingly concerned with more dynamic questions (Porter, 1994; Rumelt, Schendel, and Teece, 1991; Nelson, 1994; Prahalad and Hamel, 1994) questions about the interrelation between strategy content and process become much more pressing.

While we agree with the call of the above authors to join research in strategy content and process, cognitively oriented strategy process researchers have so far hardly linked their process theories to traditional strategy content research. That both streams of strategy research have developed rather independently from each other is the less surprising the more we understand that both rest on fundamentally incompatible assumptions which makes fruitful integration difficult. Traditionally strategy content research to a large extent fundamentally rests on equilibrium assumptions, whereas cognitively oriented strategy process research - like market process theory - tries to account for dynamic coordination of subjective knowledge and learning. An integration of strategy process and strategy content research will be impeded as long as strategy content research remains committed to equilibrium reasoning (see section II). This is because existing strategy process research already emphasizes dispersed knowledge, subjectivity and dis-equilibrium while traditional strategy content research exactly eliminates such process phenomena by importing equilibrium assumptions. In our view, this suggests that market process economics may be an attractive substitute based on which to advance integrated process and content research in the realm of strategy.

B. Shared Assumptions and Point of Views

In contrast to equilibrium-based strategy content research, much cognitive strategy process research is already based on assumptions that are similar or compatible to those of market process economics. Although theories of the strategy process (e.g., Burgelman 1983, 1991;

Hurst, Rush and White, 1989; Minzberg, 1994; Nonaka, 1994; Huff, Huff and Thomas, 1992; Hamel, 1996; Aadne and Mahnke, 1998) focus on different issues such as participation (top management vs. wider participation), directionality (top down vs. bottom up), and speed (incremental adjustment vs. revolution, punctuated change), taken together they argue in favor of the positions that (1) knowledge in firms is dispersed, partly tacit and subjectively held; (2) managerial attention spans are limited; (3) the strategy process is to a large extent a process of coordinating dispersed knowledge and learning; (4) cognitive processes of imagining and developing the company's own future road map are important, and that (5) strategic realities in organizations are developed through the complex interaction between subjective cognitive processes and tangible or objective elements in the environment. The following table illustrates the affinity of assumption between market-process theory and recent findings in modern strategy process research.

Table 2
Affinities between market process economics and strategy process research

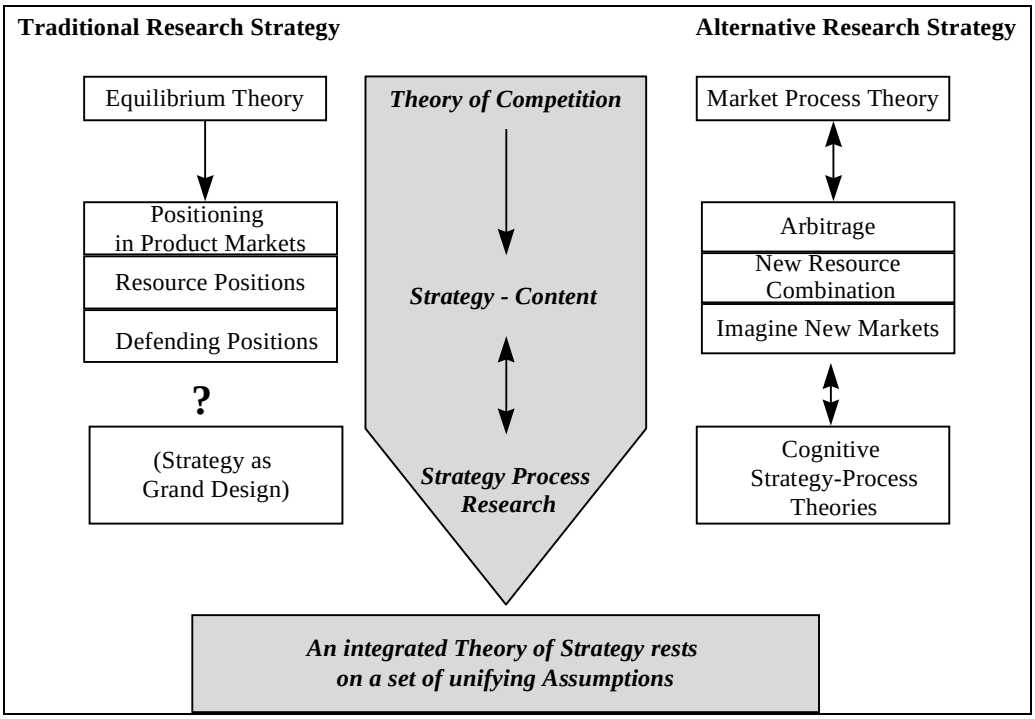
	Market process economics	**Strategy process research**
The entrepreneur	Crucial; the driving force of the market process	Intrapreneurship unleashes existing and untapped ideas and potentials through autonomous and unplanned initiative (Hamel, 1996, Burgelman, 1983, 1991)
Knowledge / Cognition	Subjective, dispersed and tacit. Surprises take place. Genuine uncertainty.	A strategy process that avoids cognitive rigidities and inertia involves managers and employees who are able to perceive strategic issues through different lenses (Hurst, Rush and White, 1989, Huff, Huff, and Thomas, 1992)
Innovation	Included, endogenous; of crucial importance, new resource combination	Innovation can be understood as a process in which firms create new problems, and the actively develop knowledge to solve them (Nonaka, 1994: 14)
The market-process	A costly discovery, coordination and learning process	The strategy process mobilizes dispersed knowledge, involves co-adaptive learning (Aadne and Mahnke, 1998)
Adaptation	Sequentially, emergent patterns	The strategy process involves not first grand design and later implementation; it is an emergent process where pattern of action emerge Minzberg (1990, 1994)
Competition	Creation of new markets, innovation, discovery	The strategy process leads to imagination and market foresight (Hamel and Prahalad, 1991, 1994)

C. Integrating the Dimensions of Strategy Research

An advanced theory of strategy integrates strategy content and process based on a set a realistic assumptions. Since, strategy content derives from a theory of competition, and market process theory offers such a theory which is already based on assumptions similar to modern strategy

process research, we argue that a more integrated theory of strategy may usefully subscribe to this underlying view of competition. In such a perspective, strategy processes in the company would support strategy content, exemplified by (1) the utilization of opportunities for spatial and inter-temporal arbitrage, (2) the discovery and imagination of new resource-combinations, based on which (3) new markets are created. The following figure illustrates how an integrated strategy research agenda might proceed:

Figure 1
Alternative Research Strategies



As we have repeatedly argued, much strategy research clearly suffers from a market theory problem (Section II). Here we suggest that this causes also a problem with conceptualizing and understanding the strategy process. Although the theories of strategic content that we have discussed offer insights into where strategy analysis might *start* (e.g. a given industry, the firm's resource endowment), they have next to nothing to say about how strategy-formation proceeds. In that type of strategy research that relies on equilibrium economics, the strategy process becomes reduced to an initial grand design. The formulation of strategy, in this view, starts from analyzing a well-defined problem-set based on which strategy is first formulated and then executed in a straightforward manner. In this view there is also a basic optimism that the knowledge that is necessary to control in order to formulate and implement such a grand strategy design, can in fact be centralized, accumulated, and prepared for top management decisions in central planning departments. This picture of strategy leaves out several important questions, for example, how local knowledge is mobilized for strategic outcomes, whether it can be aggregated for decision making at all, how intra-preneurship brings about emergent opportunities, and whether strategy is adequately seen as choice in well-defined decision arenas.

Some of these points are clearly reminiscent of the Austrian critique in the socialist calculation debate, and it is not surprising to find strategy theorist, Henry Mintzberg (1994) arguing against the rationalistic pretenses of the so-called "design school" (of Ansoff and others) in terms that are plainly Hayekian. Large-scale strategic planning exercises of the sort that were *en vogue* at the end of the 1960s have now fallen out of fashion. This is because 1) they didn't deliver what they promised and 2) the received sustained critique from the likes of Mintzberg and Quinn, who employed arguments against "grand design"-type strategic planning in firms that were closely akin to those employed by Hayek in his critique of large-scale socialist planning. However, many firms continue to do strategic planning, albeit of a more limited scope, which suggests that there must something valuable to the activity. Clearly, this has something to do with the sense of direction and motivation that the process of articulating a strategy may provide. But more importantly, there are other reasons that have to do with the question from which assumptions strategy works.

Leaving aside the traditional perspective on strategy which rests on equilibrium assumptions, the alternative view on strategy works from the shared assumptions of cognitive theories of strategy process and market-process theory as outlined above. Seen

through this alternative perspective, strategic planing takes on new meaning. Here strategic planing exercises are initiated to reveal dispersed knowledge and learning processes that top-management were not aware of at all. While top-management may not have direct access to this knowledge and learning, they may nevertheless through direction make use of it, for example, by transferring it to other uses in the organization. Therefore, from a process perspective, a distinct advantage of the strategy process is not so much that it helps giving the firm direction, but that it stimulates the discovery of dispersed knowledge and learning in the firm.

Of course, from a market process perspective, the ability of top-management to directly discover and make use of dispersed knowledge is narrowly circumscribed. Firms of even a moderate size confront a Hayekian knowledge problem, which is bound to produce outcomes that are, at least to some extent, unanticipated and unintended to (top-)management. If management is unable to centralize all dispersed and tacit knowledge possessed by the employees, an implication will be that the latter will in general have a more fine-grained understanding of their environments than managers. In addition, they are likely to also know more about the realizations of their action sets. As Sautet (1998) points out, management confronts a "double Hayekian knowledge problem": it is not just that it doesn't know what it doesn't know in the *market*; it is also the case that it doesn't know what it doesn't know about the firm's *employees*. The ability to solve the double Hayekian knowledge problem may be a critical source of competitive advantage.

The ability to do this, in turns, hinges on top-management's luck and ability to stimulate a discovery process that is internal to the firm. In such a perspective, incentives have a different role relative to the role they play in the more standard economics of organization (e.g., of the principal-agent variety): it is not so much a matter of bringing effort closer to a pre-specified level or of selecting an action out of an already known action set; rather it is a matter of stimulating entrepreneurial alertness among the firm's employees, that is, of fostering a social learning process inside the firm.

A market process and subjectivist perspective also suggests that such organizational learning may be promoted by interaction among agents that hold different subjective conceptions. This implies that organizational learning may be an emergent property of the interaction of individual learning processes. Thus, organizational learning is at least partly a spontaneous order. To the extent that stimulating and influencing organizational learning is an important

strategic task and that the outcomes of organizational learning may have strategic value, suggests why traditional thinking of strategy as grand design needs to be rethought to the extent that the assumptions made in market-process theory and cognitive strategy process theory turn out to be valid.

V. Concluding Comments: Toward a Process Theory of Competitive Advantage

We began by noting that conventionally, strategizing is seen as an activity aiming at the creation of sustained competitive advantage so that rent-streams can be earned. The economics-inspired literature on firm strategy focuses on either earning monopoly rents or Ricardian rents, where both of these returns are evaluated relative to an perfect competition equilibrium. We have called this "the equilibrium-always view". Moreover, the economics of strategy has so far had very little to say about the attainment of competitive advantage; what has captured the theorist's mind is the sustainability of rents in equilibrium.

The obvious, we think, problem with this is that the equilibrium-always view hinders understanding a number of issues that are crucial to understanding the emergence and sustainability of competitive advantage. This is what we called "the market theory problem". In contrast, we have argued that a market process view, is likely to substantially change the way we think about competitive advantage. Most notably, we can find room for entrepreneurship, endogenous change and returns that stem from exploiting disequilibrium conditions. More methodologically, there are numerous appealing overlaps between market process theory and recent strategy process research that may constitute a platform for aligning process and content research in strategy with market process theory. Together, these may help rethinking competitive advantage based on an integrated theory of strategy.

References

Aadne and Mahnke (1998), The Role of Speed and Breakdown in the Process of Strategic Renewal: *Academy of Best Papers Proceedings*, 1998, St. Diego.

Alchian, Armen A. (1950), "Uncertainty, Evolution, and Economic Theory", in idem. (1979), *Economic Forces at Work*, Indianapolis: Liberty Press.

Ansoff, Igor. (1965), *Corporate Strategy: An analytical approach to business policy for growth and expansion,* New York: McGraw Hill

Bain, Joe (1959), *Industrial Organization*, New York: Wiley.

Barney, Jay B. (1986), "Strategic Factor Markets", *Management Science 32*: 1231-1241.

Barney, Jay. B. (1991), "Firm Resources and Sustained Competitive Advantage", *Journal of Management 17:* 99-120.

Barney, Jay B. (1994), "Beyond Individual Metaphors in Understanding How Firms Behave: A Comment on Game Theory and Prospect Theory Models of Firm Behaviour" Richard P. Rumelt, Dan E. Schendel, and David J. Teece, eds. Fundamental Issues in Strategy. Boston: Harvard Business School Press.

Boettke, Peter and David Prychitko, eds. 1998. *Market Process Theories* (2 vols.). Cheltenham: Edward Elgar.

Bower, Joseph L. (1970), *Managing the Resource Allocation Process*, Boston: Harvard University Press

Caves, Richard (1984), "Economic Analysis and the Quest for Competitive Advantage," *American Economic Review, Papers and Proceedings* 74: 127-132.

Chandler, Alfred D. (1962), *Strategy and Structure*, Cambridge: MIT Press.

Cohen, Michael D. and Lee S. Sproull, eds. (1996), *Organizational Learning*, London: Sage.

Conner, Kathleen R. (1991), "A Historical Comparison of Resource-Based Theory and Five Schools of Thought Within Industrial Organization Economics: Do We Have A New Theory of the Firm?", *Journal of Management 17*: 121-154.

Cowen, Tyler and David Parker. 1997. *Markets in the Firm: A Market Process Approach to Management*. London: The Institute of Economic Affairs.

Daft and Weick (1984), Towards a model of organizations as interpretative systems, *Academy of Management Review, 9*: 284-295.

Demsetz, Harold (1973), "Industrial Structure, Market Rivalry, and Public Policy", *Journal of Law and Economics 16*: 1-10.

Dickson, Peter Reid. 1992. "Toward a General Theory of Competitive Rationality," *Journal of Marketing* 56: 69-83.

Fisher, Franklin M. (1983), *Disequilibrium Foundations for Equilibrium Economics*, Cambridge: Cambridge University Press.

Foss, Nicolai J. (1994). "The Biological Analogy and the Theory of the Firm. *Journal of Economic Issues 18*: 1115-1136 (1994). (Reprinted in Geoff Hodgson, ed. *The Foundations of Evolutionary Economics,* Aldershot: Edward Elgar, 1998).

Foss, Nicolai J. (1996), "Research in Strategy, Economics, and Michael Porter", *Journal of Management Studies 33:* 1-24.

Foss, Nicolai J. (1997), "Austrian Insights and the Theory of the Firm", *Advances in Market process economics* **4**: 175-198.

Foss, Nicolai J. 1997c, *Resources and Strategy: A Reader*, Oxford: Oxford University Press.

Foss, Nicolai J. and Jens Frøslev Christensen. 1998. "A Process Approach to Corporate Coherence," forthcoming in *Managerial and Decision Economics*.

Ghemawat, Pankaj (1997), *Games Business Play*, Cambridge: MIT Press.

Ginsberg, Ari (1994), "Minding the Competition: From Mapping to Mastery,î *Strategic Management Journal*, 15: 153-174.

Hamel, Gary (1996), "Strategy as Revolution," *Harvard Business Review:* 56-73.

Hamel, Gary and C.K. Prahalad (1994), *Competing for the Future,* New York: Free Press.

Hayek, Friedrich A. von (1937), "Economics and Knowledge", in idem. 1948. *Individualism and Economic Order*. Chicago: University of Chicago Press.

Hayek, Friedrich A. (1945), "The Use of Knowledge in Society," in idem. 1948. *Individualism and Economic Order*. Chicago: University of Chicago Press.

Hayek, Friedrich A. (1946), "The Meaning of Competition," in idem. 1948. *Individualism and Economic Order*. Chicago: University of Chicago Press.

Hayek, Friedrich A. von (1948), *Individualism and Economic Order*, Chicago: University of Chicago Press.

Hayek, Friecrich A. von. 1968. "Competition as a Discovery Proceure," in idem. 1978, *New Studies in Philosophy, Economics, Politics, and the History of Ideas*, London: Routledge and Kegan Paul.

Huff, J.O., Huff, A.S. and Thomas, H. (1992), "Strategic Renewal and the Interaction of Cumulative Stress and Inertia," *Strategic Management Journal*, 13: 55-75.

Hurst, D.K., Rush, J.C., & White, R.E. (1989), "Top management teams and organizational renewal, *Strategic Management Journal*, 10: 87-105.

Jacobson, Robert. 1992. "The Austrian Theory of Strategy," *Academy of Management Review* **17**: 782-807.

Kirzner, Israel M. 1973. *Entrepreneurship and Competition*. Chicago: University of Chicago Press.

Kirzner, Israel M. 1992. *The Meaning of the Market Process*. London: Routledge.

Kirzner, Israel M. 1997. "Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach," *Journal of Economic Literature* 35: 60-85.

Lachmann, Ludwig M. 1976. "From Mises to Shackle: An Essay on Market process economics and the Kaleidic Society," in Don Lavoie, ed. 1994. *Expectations and the Meaning of Institutions: Essays in Economics by Ludwig Lachmann*. London: Routledge.

Lachmann, Ludwig M. 1978. *Capital, Expectations, and the Market Process*. Kansas City: Sheed Andrews and McNeel.

Lachmann, Ludwig M. (1986), *The Market as an Economic Process*, Oxford: Basil Blackwell.

Lachmann, Ludwig M. (1994), *Expectations and the Meaning of Institutions*, London: Routledge.

Langlois, Richard N. (ed.) (1986a), *Economics as a Process: Essays in the New Institutional Economics*, Cambridge: Cambridge University Press.

Langlois, Richard N, and Paul L. Robertson (1995), *Firms, Markets, and Economic Change: A Dynamic Theory of Business Institutions.* London: Routledge.

Lavoie, Don (1985), *Rivalry and Central Planning*, Cambridge: Cambridge University Press.

Lippman, Stephen A. and Richard P. Rumelt (1982), "Uncertain Imitability: An Analysis of Interfirm Differences Under Competition", *Bell Journal of Economics 13*: 418-438.

Loasby, Brian J. (1976), *Choice, Complexity, and Ignorance*. Cambridge: Cambridge University Press.

Loasby, Brian J. (1991), *Equilibrium and Evolution*. Manchester: Manchester University Press.

Machovec, Frank. (1995), *Perfect Competition and the Transformation of Economics*. London: Routledge.

March, James G. (1991), "Exploration and Exploitation in Organizational Learning", *Organization Science 2:* 71-87.

Menger, Carl (1871/1985), *Principles of Economics*, New York: New York University Press.

Mintzberg, Henry (1994), *The Rise and Fall of Strategic Planning*. New York: Prentice-Hall.

Mises, Ludwig von (1966 [1949]), *Human Action: A Treatise on Economics*, New Haven: Yale University Press.

Montgomery, Cynthia A. and Birger Wernerfelt (1988), "Diversification, Ricardian Rents, and Tobin's q", *RAND Journal of Economics 19*: 623-622.

Nalebuff, Barry J. and Joseph E. Stiglitz. 1983. "Prizes and incentives: towards a general theory of compensation and competition," *Bell Journal of Economics* 14: 21-43.

Nelson, Richard R. (1994), "Why do Firms differ and How does it matter?," in Richard P. Rumelt, Dan E. Schendel, and David J. Teece, eds. Fundamental Issues in Strategy. Boston: Harvard Business School Press.

Nelson, Richard R. and Sidney G. Winter (1982), *An Evolutionary Theory of Economic Change*, Cambridge: The Belknap Press.

Nonaka, Ikujiro and Takeuchi. 1995. *The Knowledge-Creating Company*. Oxford: Oxford University Press.

North, Douglass C. (1990), *Institutions, Institutional Change, and Economic Performance*, Cambridge: Cambridge University Press.

O'Driscoll, Gerald P. and Mario Rizzo (1985), *The Economics of Time and Ignorance*, Oxford: Basil Blackwell.

Penrose, Edith T. (1952), "Biological Analogies in the Theory of the Firm", *American Economic Review*, 42, 804-819.

Penrose, Edith T. (1959 [1995]), *The Theory of the Growth of the Firm*, Oxford: Oxford University Press.

Peteraf, Margaret A. (1993), "The Cornerstones of Competitive Advantage: A Resource-Based View", *Strategic Management Journal 14*: 179-191.

Pettigrew, Andrew (1992), "The character and significance of strategy process research", *Strategic Management Journal 13*: 5-16.

Porter, Michael E. (1980), *Competitive Strategy*, New York: Free Press.

Porter, Michael E. (1981), "The Contributions of Industrial Organization to Strategic Management", *Academy of Management Review* ***6****:* 609-620.

Porter, Michael E. (1985), *Competitive Advantage*, New York: Free Press.

Porter, Michael E. (1994), Towards a Dynamic Theory of Strategy, in Richard P. Rumelt, Dan E. Schendel, and David J. Teece, eds. Fundamental Issues in Strategy. Boston: Harvard Business School Press.

Prahalad, C.K. and Gary Hamel (1990), "The Core Competence of the Corporation", *Harv ard Business Review 66* (May/June): 79-91.

Rumelt, Richard P. (1984), "Towards a Strategic Theory of the Firm", in Richard B. Lamb (ed.) (1984), *Competitive Strategic Management*, New Jersey: Englewood Cliffs.

Rumelt, Richard P. (1987), "Theory, Strategy, and Entrepreneurship", David J. Teece, ed. (1987), *The Competitive Challenge*, Cambridge: Ballinger.

Rumelt, Richard P., Dan E. Schendel, and David J. Teece, eds. (1994), *Fundamental Issues in Strategy: A Research Agenda*, Harvard Business School Press, Boston, Mass.

Sautet, Frederic. 1998. *Une Théorie Entrepreneuriale de le Firme (An Entrepreneurial Theory of the Firm),* Ph.d.-dissertation, Université Paris IX, Dauphine.

Schendel, Dan (1992), Introduction to Special Issue on Strategy Process, *Strategic Management Journal 13*: 1-5.

Scherer, Frederick M. (1980*), Industrial Market Structure and Economic Performance,* Boston: Houghton-Mifflin.

Schmalensee, Richard and Robert D. Willig (1989), *Handbook of Industrial Organization,* Amsterdam: North-Holland.

Schumpeter, Joseph A. (1912/1934). *The Theory of Economic Development*, Cambridge: Harvard University Press.

Semler, Ricardo (1989), "Managing Without Managers," *Harvard Business Review* (Sept.-Oct.).

Shackle, George L.S. (1958), *Time in Economics*, Cambridge: Cambridge University Press.

Shackle, George L.S. (1972), *Economics and Epistemics*, Cambridge: Cambridge University Press.

Shapiro, Carl (1989), "The Theory of Strategy," *RAND Journal of Economics* 20: 125-137.

Teece, David J., Gary Pisano and Amy Shuen (1997, "Dynamic Capabilities and Strategic Management", *Strategic Management Journal.*

Tirole, Jean (1988), *The Theory of Industrial Organization,* Cambridge: MIT Press.

Vaughn, Karen I. (1994), *Austrian Economics in America: The Migration of a Tradition*. Cambridge: Cambridge University Press.

Wernerfelt, Birger (1984), "A Resource-Based View of the Firm. *Strategic Management Journal 5*: 171-180.

Williams, Jeffrey A. (1992), "How Sustainable is Your Competitive Advantage?", *California Management Review 34:* 29-51.

Williamson, Oliver E. 1985. *The Economic Institutions of Capitalism*. New York: The Free Press.

Williamson, Oliver E. 1996. *The Mechanisms of Governance*. Oxford: Oxford University Press.

Zenger, Todd and William S. Hesterly. 1997. "The Disaggregation of Corporations: Selective Intervention, High-Powered Incentives, and Molecular Units," *Organization Science* 8: 209-222.

Danish **R**esearch **U**nit for **I**ndustrial **D**ynamics

The Research Programme

The DRUID-research programme is organised in 3 different research themes:

- The firm as a learning organisation

- Competence building and inter-firm dynamics

- The learning economy and the competitiveness of systems of innovation

In each of the three areas there is one strategic theoretical and one central empirical and policy oriented orientation.

Theme A: The firm as a learning organisation

The theoretical perspective confronts and combines the ressource-based view (Penrose, 1959) with recent approaches where the focus is on learning and the dynamic capabilities of the firm (Dosi, Teece and Winter, 1992). The aim of this theoretical work is to develop an analytical understanding of the firm as a learning organisation.

The empirical and policy issues relate to the nexus technology, productivity, organisational change and human ressources. More insight in the dynamic interplay between these factors at the level of the firm is crucial to understand international differences in performance at the macro level in terms of economic growth and employment.

Theme B: Competence building and inter-firm dynamics

The theoretical perspective relates to the dynamics of the inter-firm division of labour and the formation of network relationships between firms. An attempt will be made to develop evolutionary models with Schumpeterian innovations as the motor driving a Marshallian evolution of the division of labour.

The empirical and policy issues relate the formation of knowledge-intensive regional and sectoral networks of firms to competitiveness and structural change. Data on the structure of production will be combined with indicators of knowledge and learning. IO-matrixes which include flows of knowledge and new technologies will be developed and supplemented by data from case-studies and questionnaires.

Theme C: The learning economy and the competitiveness of systems of innovation.

The third theme aims at a stronger conceptual and theoretical base for new concepts such as 'systems of innovation' and 'the learning economy' and to link these concepts to the ecological dimension. The focus is on the interaction between institutional and technical change in a specified geographical space. An attempt will be made to synthesise theories of economic development emphasising the role of science based-sectors with those emphasising learning-by-producing and the growing knowledge-intensity of all economic activities.

The main empirical and policy issues are related to changes in the local dimensions of innovation and learning. What remains of the relative autonomy of national systems of innovation? Is there a tendency towards convergence or divergence in the specialisation in trade, production, innovation and in the knowledge base itself when we compare regions and nations?

The Ph.D.-programme

There are at present more than 10 Ph.D.-students working in close connection to the DRUID research programme. DRUID organises regularly specific Ph.D-activities such as workshops, seminars and courses, often in a co-operation with other Danish or international institutes. Also important is the role of DRUID as an environment which stimulates the Ph.D.-students to become creative and effective. This involves several elements:

- access to the international network in the form of visiting fellows and visits at the sister institutions
- participation in research projects
- access to supervision of theses
- access to databases

Each year DRUID welcomes a limited number of foreign Ph.D.-students who wants to work on subjects and project close to the core of the DRUID-research programme.

External projects

DRUID-members are involved in projects with external support. One major project which covers several of the elements of the research programme is DISKO; a comparative analysis of the Danish Innovation System; and there are several projects involving international co-operation within EU's 4th Framework Programme. DRUID is open to host other projects as far as they fall within its research profile. Special attention is given to the communication of research results from such projects to a wide set of social actors and policy makers.

DRUID Working Papers

96-1 **Lundvall, Bengt-Åke:** The Social Dimension of the Learning Economy. (ISBN 87-7873-000-7)

96-2 **Foss, Nicolai J.:** Firms, Incomplete Contracts and Organizational Learning. (ISBN 87-7873-001-5)

96-3 **Dalum, Bent and Villumsen, Gert**: Are OECD Export Specialisation Patterns Sticky?' Relations to the Convergence-Divergence Debate. (ISBN 87-7873-002-3)

96-4 **Foss, Nicolai J:** Austrian and Post-Marshallian Economics: The Bridging Work of George Richardson. (ISBN 87-7873-003-1)

96-5 **Andersen, Esben S., Jensen, Anne K., Madsen, Lars and Jørgensen, Martin:** The Nelson and Winter Models Revisited: Prototypes for Computer-Based Reconstruction of Schumpeterian Competition. (ISBN 87-7873-005-8)

96-6 **Maskell, Peter:** Learning in the village economy of Denmark. The role of institutions and policy in sustaining competitiveness. (ISBN 87-7873-006-6)

96-7 **Foss, Nicolai J. & Christensen, Jens Frøslev:** A Process Approach to Corporate Coherence. (ISBN 87-7873-007-4)

96-8 **Foss, Nicolai J.:** Capabilities and the Theory of the Firm. (ISBN 87-7873-008-2)

96-9 **Foss, Kirsten:** A transaction cost perspective on the influence of standards on product development: Examples from the fruit and vegetable market. (ISBN 87-7873-009-0)

96-10 **Richardson, George B.:** Competition, Innovation and Increasing Returns. (ISBN 87-7873-010-4)

96-11 **Maskell, Peter:** Localised low-tech learning in the furniture industry. (ISBN 87-7873-011-2)

96-12 **Laursen, Keld:** The Impact of Technological Opportunity on the Dynamics of Trade Performance. (ISBN 87-7873-012-0)

96-13 **Andersen, Esben S.:** The Evolution of an Industrial Sector with a Varying Degree of Roundaboutness of Production. (ISBN 87-7873-013-9)

96-14 **Dalum, Bent, Laursen, Keld & Villumsen, Gert**: The Long Term Development of OECD Export Specialisation Patterns: De-specialisation and "Stickiness". (ISBN 87-7873-014-7)

96-15 **Foss, Nicolai J.:** Thorstein B. Veblen: Precursor of the Competence-Based Approach to the Firm. (ISBN 87-7873-015-5)

96-16 **Gjerding, Allan Næs:** Organisational innovation in the Danish private business sector. (ISBN 87-7873-016-3)

96-17 **Lund, Reinhard & Gjerding, Allan Næs:** The flexible company Innovation, work organisation and human ressource management. (ISBN 87-7873-017-1)

97-1 **Foss, Nicolai J.:** The Resource-Based Perspective: An Assessment and Diagnosis of Problems. (ISBN 87-7873-019-8)

97-2 **Langlois, Richard N. & Foss, Nicolai J.:** Capabilities and Governance: the Rebirth of Production in the Theory of Economic Organization. (ISBN 87-7873-020-1)

97-3 **Ernst, Dieter:** Partners for the China Circle? The Asian Production Networks of Japanese Electronics Firms. (ISBN 87-7873-022-8)

97-4 **Richardson, George B.:** Economic Analysis, Public Policy and the Software Industry. (ISBN 87-7873-023-6)

97-5 **Borrus, Michael & Zysman, John:** You Don't Have to Be A Giant: How The Changing Terms of Competition in Global Markets are Creating New Possibilities For Danish Companies. (ISBN 87-7873-024-4)

97-6 **Teubal, Morris.:** Restructuring and Embeddeness of Business Enterprises-Towards an Innovation System Perspective on Diffusion Policy. (ISBN 87-7873-025-2)

97-7 **Ernst, Dieter & Guerrieri, Paolo:** International Production Networks and Changing Trade Patterns in East Asia: The case of the Electronics Industry. (ISBN 87-7873-026-0)

97-8 **Lazaric, Nathalie & Marengo, Luigi:** Towards a Characterisation of Assets and Knowledge Created in Technological Agreements: Some evidence from the automobile-robotics sector. (ISBN 87-7873-027-9)

97-9 **Ernst, Dieter.:** High-Tech Competition Puzzles. How Globalization Affects Firm Behavior and Market Structure in the Electronics Industry. (ISBN 87-7873-028-7)

97-10 **Foss, Nicolai J.:** Equilibrium vs Evolution in the Resource-Based Perspective: The Conflicting Legacies of Demsetz and Penrose. (ISBN 87-7873-029-5)

97-11 **Foss, Nicolai J.:** Incomplete Contracts and Economic Organisation: Brian Loasby and the Theory of the firm. (ISBN 87-7873-030-9)

97-12 **Ernst, Dieter & Lundvall, Bengt-Åke:** Information Technology in The Learning Economy – Challenges for Developing Countries. (ISBN 87-7873-031-7)

97-13 **Kristensen, Frank Skov.:** A study of four organisations in different competitive environments. (ISBN 87-7873-032-5)

97-14 **Drejer, Ina, Kristensen, Frank Skov & Laursen, Keld:** Studies of Clusters as a Basis for Industrial and Technology Policy in the Danish Economy. (ISBN 87-7873-033-3)

97-15 **Laursen, Keld & Drejer, Ina.:** Do Inter-sectoral Linkages Matter for International Export Specialisation? (ISBN 87-7873-034-1)

97-16 **Lundvall, Bengt-Åke & Kristensen, Frank Skov.:** Organisational change, innovation and human ressource Development as a response to increased competition. (ISBN 87-7873-036-8)

98-1 **Præst, Mette.:** An Empirical Model of Firm Behaviour: A dynamic Approach to Competence Accumulation and Strategic Behaviour. (ISBN 87-7873-037-6)

98-2 **Ducatel, Ken.:** Learning and skills in the Knowledge Economy. (ISBN 87-7873-038-4)

98-3 **Ernst, Dieter.:** What Permits Small Firms to Compete in High-Tech Industries? Inter-Organizational Knowledge Creation in the Taiwanese Computer Industry. (ISBN 87-7873-039-2)

98-4 **Christensen, Jens Frøslev.:** The Dynamics of the Diversified Corporation and the Role of Central Management of Technology. (ISBN 87-7873-040-6)

98-5 **Valente, Marco.:** Laboratory for Simulation Development. (ISBN 87-7873-041-4)

98-6 **Valente, Marco.:** Technological Competition: a Qualitative Product Life Cycle. (ISBN 87-7873-042-2)

98-7 **Lam, Alice.:** The Social Embeddedness of Knowledege: Problems of Knowledge Sharing and Organisational Learning in International High-Technology Ventures. (ISBN 87-7873-043-0)

98-8 **Jørgensen, Kenneth M.:** Information Technology and Change in Danish Organizations. (ISBN 87-7873-044-9)

98-9 **Andersen, Esben Sloth:** Escaping Satiation in an Evolutionary Model of Structural economic Dynamics. (ISBN 87-7873-045-7)

98-10 **Foss, Kirsten:** Technological Interdependencies, Specialization and Coordination: A Property Rights Perspective on The Nature of the Firm. (ISBN 87-7873-046-5)

98-11 **Andersen, Poul H.:** Organizing International Technological Collaboration in Subcontractor Relationships. An Investigation of the Knowledge-Stickyness Problem. (ISBN 87-7873-047-3)

98-12 **Nymark, Søren:** Billeder af strategi i forandringsrige organisatoriske omgivelser: 3 cases fra DISKO studierne. (ISBN 87-7873-048-1)

98-13 **Andersen, Esben Sloth:** The Evolution of the Organisation of Industry. (ISBN 87-7873-050-3)

98-14 **Foss, Kirsten & Foss, Nicolai J.:** The Market Process and The Firm: Toward a Dynamic Property Rights Perspective. (ISBN 87-7873-051-1)

98-15 **Lorenz, Edward.** Societal Effects and the Transfer of Business Practices to Britain and France. (ISBN 87-7873-053-8)

98-16 **Ernst, Dieter.** Catching-Up, Crisis and Industrial Upgrading. Evolutionary Aspects of Technological Learning in Korea's Electronics Industry. (ISBN 87-7873-054-6)

98-17 **Kaisla, Jukka.** The Market Process and the Emergence of the Firm: Some Indications of Entrepreneurship Under Genuine Uncertainty. (ISBN 87-7873-055-4)

98-18 **Laursen, Keld.** Do Export and Technological Specialisation Patterns Co-evolve in Terms of Convergence or Divergence?: Evidence from 19 OECD Countries, 1971-1991. (ISBN 87-7873-056-2)

98-19 **Foss, Nicolai J.:** Firms and the Coordination of Knowledge: Some Austrian Insights. (ISBN 87-7873-057-0)

98-20 **Mahnke, Volker & Aadne, John Harald:** Process of Strategic Renewal, Competencies, and the Management of Speed. (ISBN 87-7873-058-9)

98-21 **Lorenzen, Mark:** Information, cost learning, and trust. Lessons form co-operation and higher-order capabilities amongst geographically proximate firms. (ISBN 87-7873-059-7)

98-22 **Lam, Alice:** Tacit Knowledge, Organisational Learning and Innovation: A Societal Perspective. (ISBN 87-7873-060-0)

98-23 **Lund, Reinhard:** Organizational and innovative flexibility mechanisms and their impact upon organizational effectiveness. (ISBN 87-7873-061-9)

98-24 **Christensen, Jesper Lindgaard & Drejer, Ina:** Finance and Innovation System or Chaos. (ISBN 87-7873-062-7)

98-25 **Laursen, Keld:** How Structural Change Differs, and Why it Matters (for Economic Growth) (ISBN 87-7873-063-5)

98-26 **Holmén, Magnus & Jacobsson, Staffan:** A method for identifying actors in a knowledge based cluser. (ISBN 87-7873-064-3)

98-27 **Richardson, G. B.:** Production, Planning and Prices. (ISBN 87-7873-065-1)

98-28 **Foss, Nicolai J.:** Austrian Economics and Game Theory: a Preliminary Methodological Stocktaking. (ISBN 87-7873-067-8)

98-29 **Foss, Nicolai J. & Mahnke Volker:** Strategy Research and the Market Process Perspective. (ISBN 87-7873-068-6)

Information for subscribers.
Subscription price for 1997 is 600 DKR (about 20 papers). The rate for single issues is 40 DKR. It is possible to make a commitment to an exchange of papers from related departments or research teams. All correspondence concerning the DRUID Working Papers should be send to.

Pernille Wittrup
Fibigerstræde 4
DK-9220 Aalborg OE
Tel. 45 96 35 82 65
Fax. 45 98 15 60 13
E-mail: druid-wp@business.auc.dk